

Algebra 1-2  
Chapter 6: Systems  
**Chapter Preview**

Name: ANSWER KEY  
Period: \_\_\_\_\_ Date: \_\_\_\_\_

To be successful in Chapter 6, there are some prerequisite skills that you will have to master:

**Graphing Lines**

- A line is an infinite collection of points going in opposite directions. But all you need to graph a line is **two points** and any straight edge (like your ID or ruler).
- Any two points on that line will do. There are a couple methods you can use to find them.

1) For lines in Slope-Intercept Form:  $y = mx + b$

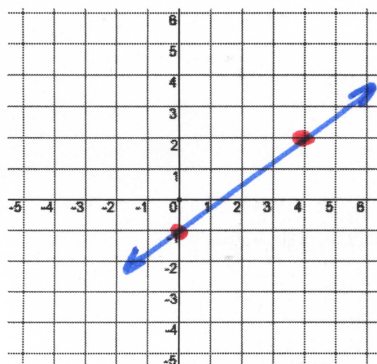
- Begin at the y-intercept, point **(0, b)** [up or down from the origin]
- Use slope (**m**) in fraction form to find the second point needed

○  $m = \frac{\text{Up}(+)/\text{Down}(-)}{\text{Right}}$  Up or Down from point (0, b) then to the Right

**Graph** each line by using the y-intercept (**b**) and the slope (**m**).

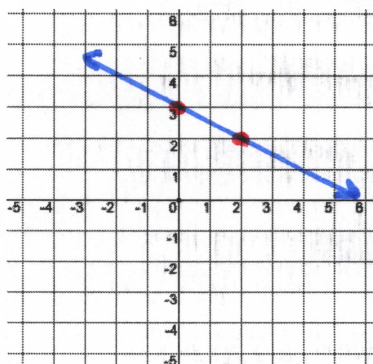
a)  $y = \frac{3}{4}x - 1$

$m = \frac{3}{4}$   
 $b = -1$



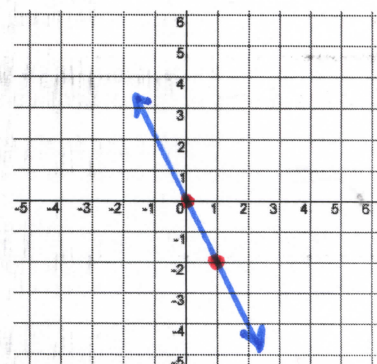
b)  $y = -\frac{1}{2}x + 3$

$m = -\frac{1}{2}$   
 $b = 3$



c)  $y = -2x$

$m = -2 = \frac{-2}{1}$   
 $b = 0$



2) For lines in Standard Form:  $Ax + By = C$

**Method 1:** Solve for **y** to put in slope-intercept form

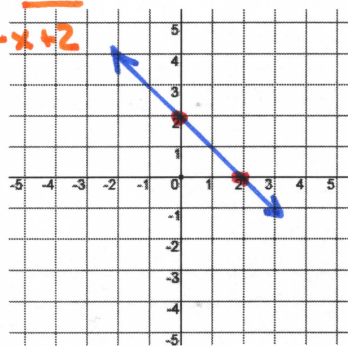
- Move "Ax" term over to other side (either add or subtract as needed)
- Divide all terms by **B** to get **y** by itself

**Method 2:** Use the tricks  $m = \frac{-A}{B}$ ;  $b = \frac{C}{B}$

**Solve** for **y** (put in  $y = mx + b$  form) then **graph** the line.

d)  $x + y = 2$

$-x$     $-x$   
 $y = -x + 2$

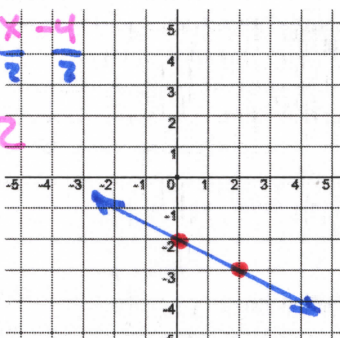


e)  $x + 2y = -4$

$-x$     $-x$   
 $2y = -x - 4$   
 $y = -\frac{1}{2}x - 2$

$m = -\frac{1}{2}$   
 $b = -2$

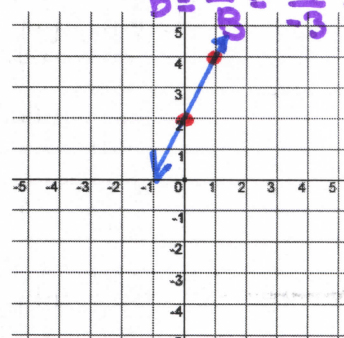
$m = \frac{-A}{B} = \frac{-1}{2}$   
 $b = \frac{C}{B} = \frac{-4}{2} = -2$



f)  $6x - 3y = -6$

$A$     $B$     $C$

$m = \frac{-A}{B} = \frac{-6}{-3} = 2$   
 $b = \frac{C}{B} = \frac{-6}{-3} = 2$

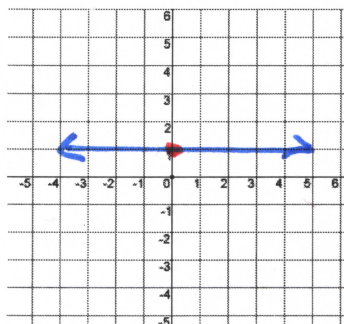


**\*\*Horizontal lines have a slope = 0, so they are of the form  $y = b$ . Vertical lines are in the form  $x = k$ \*\***

# Prerequisite Skills for Chapter 6

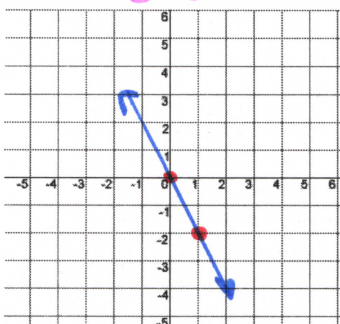
## Graph each equation. (Lesson 6.1)

1.  $y = 1$



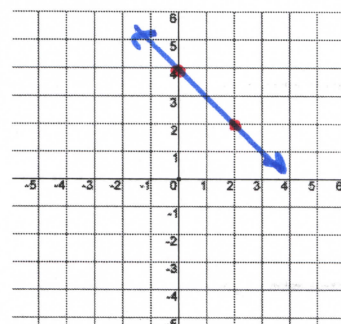
2.  $y = -2x$

$m = -\frac{2}{1}$   
 $b = 0$



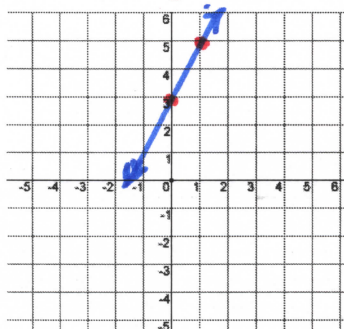
3.  $y = 4 - x \Rightarrow y = -x + 4$

$m = -\frac{1}{1}$   
 $b = 4$



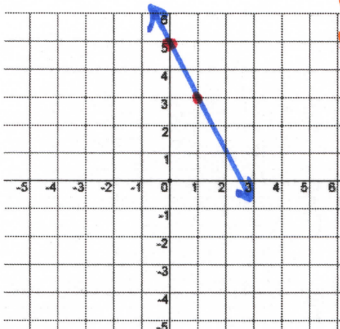
4.  $y = 2x + 3$

$m = \frac{2}{1}$   
 $b = 3$



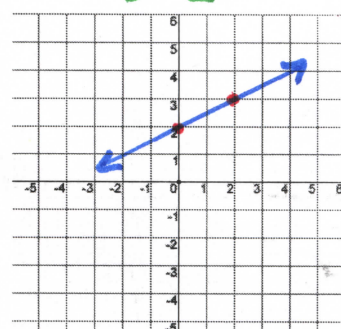
5.  $y = 5 - 2x \Rightarrow y = -2x + 5$

$m = -\frac{2}{1}$   
 $b = 5$



6.  $y = \frac{1}{2}x + 2$

$m = \frac{1}{2}$   
 $b = 2$



## Solve for the indicated variable. (Lesson 6.2)

7.  $4x + 8y = 16$ , for  $x$

$\frac{-8y}{4} = \frac{-8y + 16}{4}$   
 $x = -2y + 4$

8.  $4x + 8y = 16$ , for  $y$

$\frac{-4x}{8} = \frac{-4x + 16}{8}$   
 $y = -\frac{1}{2}x + 2$

9.  $3x - y = 9$ , for  $x$

$\frac{+y}{3} = \frac{+y + 9}{3}$   
 $x = \frac{1}{3}y + 3$

10.  $3x - y = 9$ , for  $y$

$\frac{-3x}{-1} = \frac{-3x + 9}{-1}$   
 $y = 3x - 9$

## Simplify each expression. (Lesson 6.3)

11.  $(3x + y) - (2x + y)$

$3x + y - 2x - y$   
 $x + 0y = x$

12.  $(7x - 2y) - (7x + 4y)$

$7x - 2y - 7x - 4y$   
 $0x - 6y = -6y$

13.  $(16x - 3y) + (11x + 3y)$

$16x - 3y + 11x + 3y$   
 $27x + 0y = 27x$

14.  $(8x - 4y) + (-8x + 5y)$

$8x - 4y - 8x + 5y$   
 $0x + y = y$

15.  $4(2x + 3y) - (8x - y)$

$8x + 12y - 8x + y$   
 $0x + 13y = 13y$

16.  $3(x + 4y) + 2(2x - 6y)$

$3x + 12y + 4x - 12y$   
 $7x + 0y = 7x$